

**State of Nebraska  
Department of Health and  
Human Services**

**Tuberculosis Program  
Report 2012-2013**



## **TUBERCULOSIS IN NEBRASKA – 2012 - 2013**

### **Introduction:**

Tuberculosis (TB) is an infectious disease caused by the bacterium *Mycobacterium tuberculosis*, and is one of the leading causes of death in the world today. Worldwide, in 2012, 8.6 million people fell ill with TB and 1.3 million died from it. In the United States (U.S.), TB was the leading cause of death in 1900. With the advent of effective treatment, the U.S. experienced a steady decline in cases until the mid-1980s. A resurgence of TB occurred at that time, with national case rates peaking in the early 1990s. Through extensive public health interventions at the national, state, and local levels, tuberculosis is once again on the decline nationally. There were 9,945 TB cases reported in the U.S. for 2012 for an incidence rate of 3.2/100,000 which is the lowest recorded rate since national TB surveillance began in 1953. Provisional 2013 national data is 9558 for a case rate of 3.0/100,000. More information on national data is available on World TB day, March 24, 2014. Nebraska also had a decrease in cases in 2012. There were 22 reported cases in 2012 for an incidence rate of 1.2/100,000. In 2013, Nebraska had a further small decrease to 21 cases and an incidence rate of 1.17/100,000.

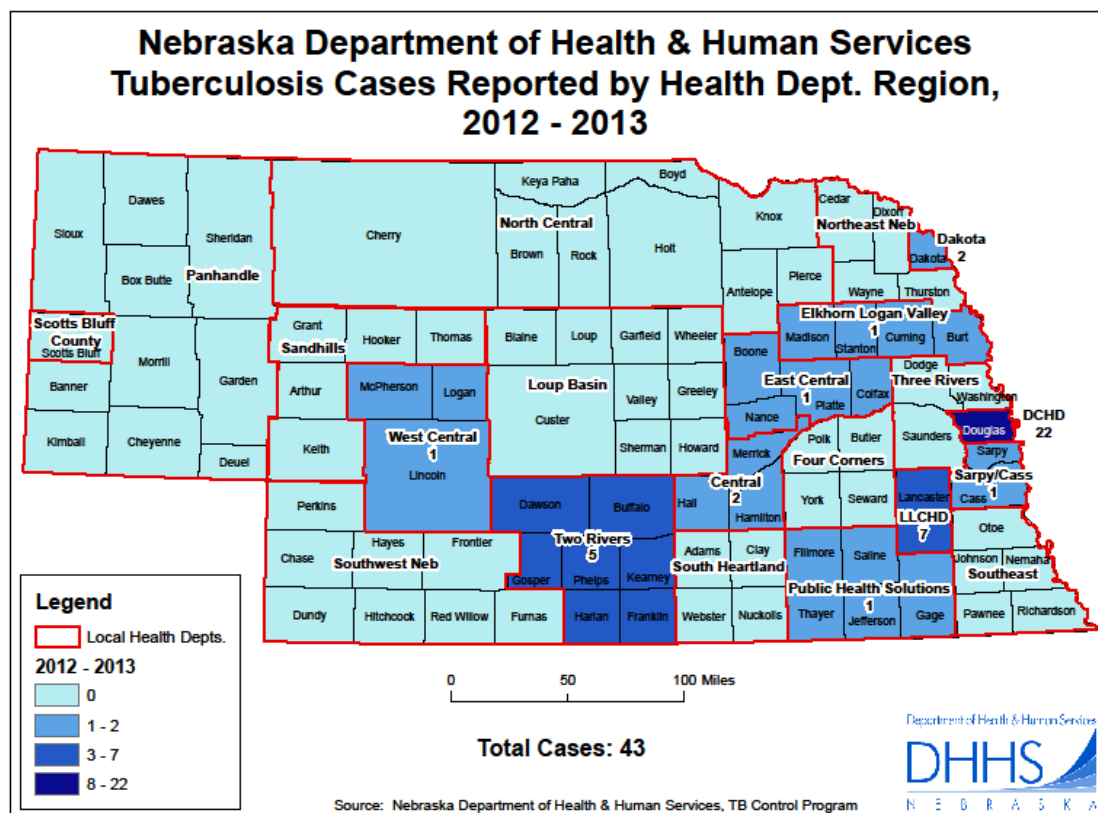
Although the number of active cases in Nebraska remains low, the cases continue to be difficult to treat because of the high percentage of foreign-born population that comprise Nebraska's TB morbidity and also the complexity of the cases. The language and cultural barriers of the foreign born population require a tremendous amount of public health resources to ensure a successful TB

treatment outcome. Nationally and worldwide, there continues to be a great need for research in tuberculosis to develop new diagnostic tools and new drugs to fight the disease. Nebraska has not yet seen an increase in multi-drug and extensive drug-resistant diseases that have become more frequent around the world but we realize that the global burden of TB is not far away from Nebraska's borders. It is true that "TB anywhere is TB everywhere".

### **Tuberculosis in Nebraska: 2012 -2013 Statewide Summary**

In 2012, Nebraska had a total of 22 cases of TB, for a rate of 1.2 cases per 100,000 people. In 2013, Nebraska had a total of 21 cases of TB for a case rate of 1.17 cases per 100,000 people. This represents the lowest number of TB cases and the lowest attack rate over the last five years in Nebraska. The highest was in 2009 when Nebraska had 32 cases, for a rate of 1.9 cases per 100,000 people. However, it is important to note that five-year data for low-incidence states like Nebraska are often not sufficient enough to reflect trends in morbidity.

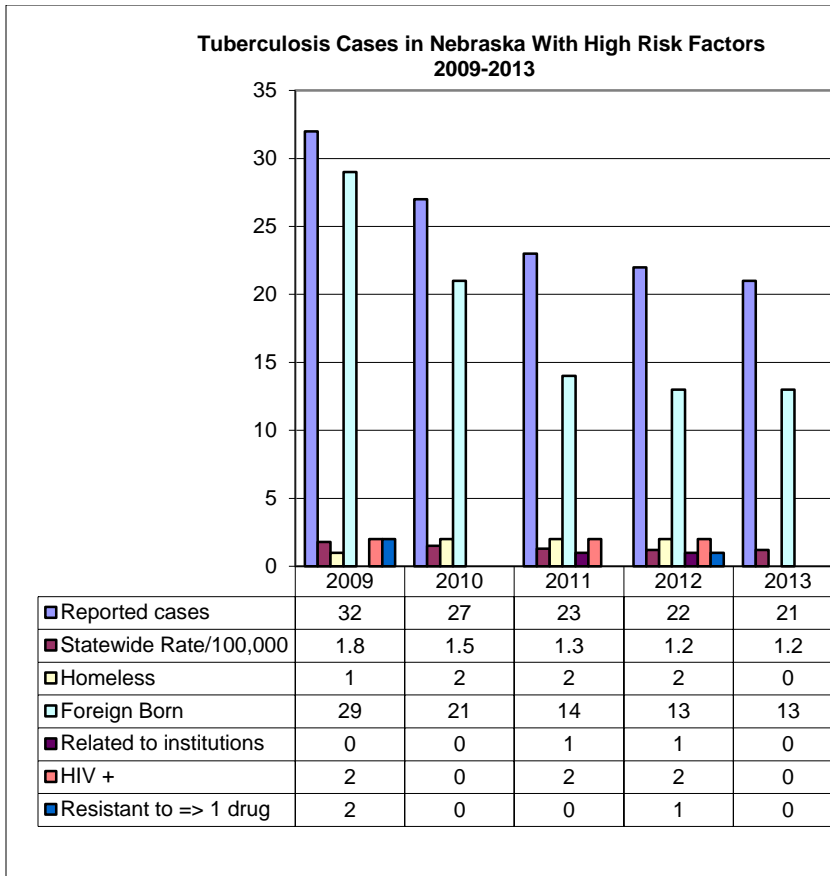
There were 6 counties in Nebraska that reported at least one case of TB for 2012 and 9 counties that reported at least one case of TB for 2013. County incidence rates are available through requests through the State TB Program (see Attachment A) since the population in some of the counties is too small to publish the data.



## Active TB Summary

### Tuberculosis by Risk Factors:

Of the 22 cases of tuberculosis in Nebraska in 2012, 13 were foreign born, 2 were homeless, 1 case was from a nursing home and 2 cases were co-infected with HIV. Of the 21 cases of tuberculosis in Nebraska in 2013, 13 were foreign born and there were no cases that were homeless, related to institutions, or HIV positive or had any drug resistance.



Source: Nebraska Department of Health & Human Services, TB Control Program 2013

### **Tuberculosis in Nebraska 2012-2013 by County Health Department:**

Nebraska has 93 counties that are covered by 20 county or district health departments. Since some of Nebraska's counties have less than a 20,000 population base, surveillance data is to be reported by the county health departments rather than by individual counties. If county specific data is required it is available through requests through the State TB Program (Attachment A). For the period of 2009-2013, 12 county health department or health districts reported at least 1 case of tuberculosis.

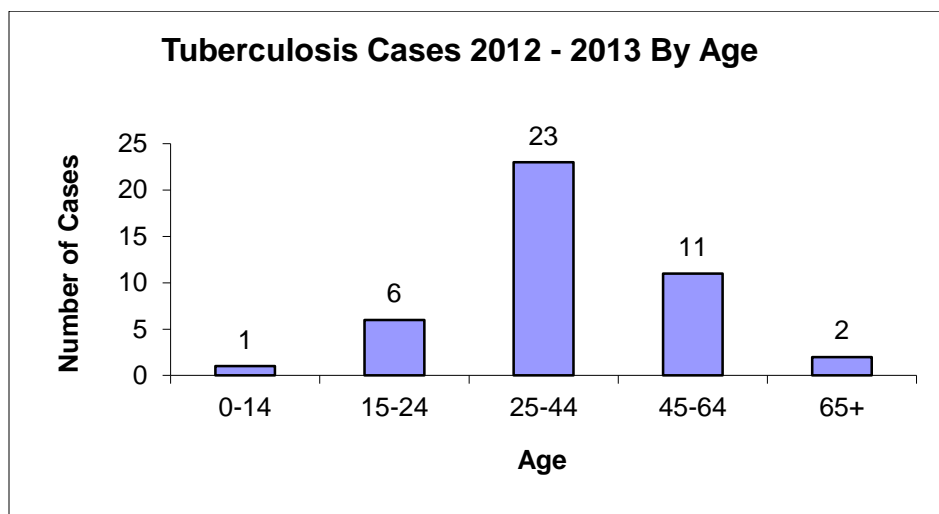
5 county health districts, reporting 5 or more cases, accounted for 107 of the 125 or 86% of cases that occurred from 2009 through 2013. Douglas County Health

Department (Omaha), Sarpy/Cass Department of Health and Wellness (included in the Omaha metro area) and Lincoln-Lancaster Health Department (Lincoln area) are the state's three most populous health districts. Together they reported 90 cases or 72% of the cases during the last five-year period. The data below is one of the tools used by health care facilities when completing their risk assessment for TB.

<b>Nebraska Department of Health and Human Services Tuberculosis Cases Reported by County Health Department 2009- 2013</b>						
						<b>5Year</b>
<b>Health Department</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>Total</b>
Panhandle HD			2			2
Two Rivers HD	1	1		2	3	7
Dakota County HD	5	1	1	1	1	9
Douglas County HD	16	15	11	13	9	64
Central District HD		1		1	1	3
Lincoln/Lancaster HD	7	5	3	4	3	22
West Central HD			1		1	2
Southeast District HD		1			0	1
Elkhorn Logan ValleyHD	1	1	1		1	4
East Central HD	1	1	2	1	0	5
Public Health Solutions			1		1	2
Sarpy/Cass County HD	1	1	1		1	4
<b>TOTAL</b>	<b>32</b>	<b>27</b>	<b>23</b>	<b>22</b>	<b>21</b>	<b>125</b>

### **Tuberculosis in Nebraska 2012 - 2013 by Age Group:**

In 2012-2013, the highest number of cases, 23, was identified in the 25-44 age group. The lowest number of cases, 1, was identified between 0 and age 14. For the past several years, tuberculosis cases have occurred in greater numbers in the young adult population. Often this means that active cases are in contact with children and are in the workforce, both of which require in-depth contact investigations, follow-up and the increased possibility of disease transmission.



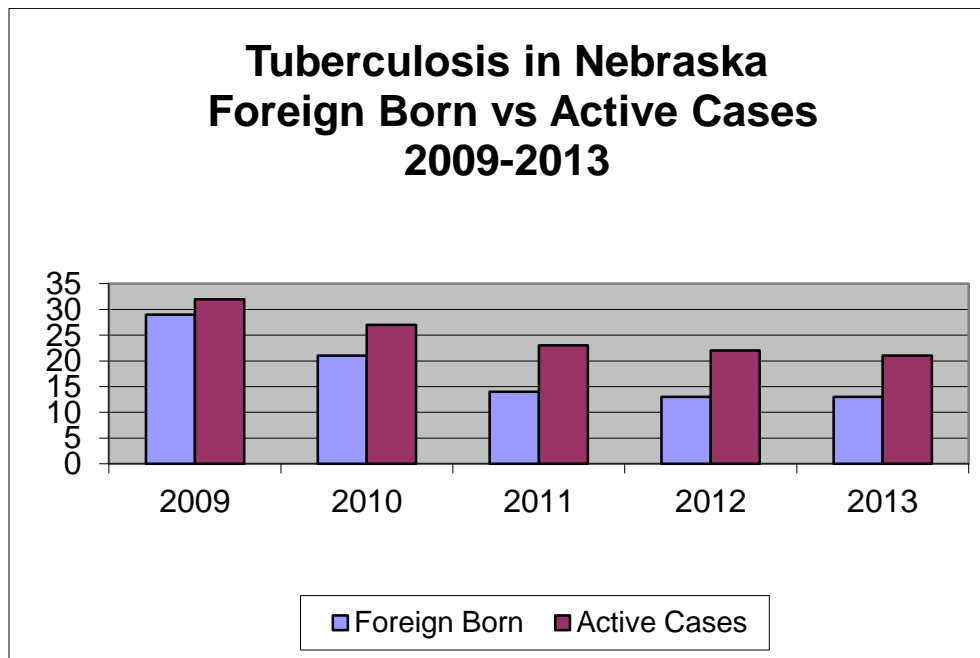
Source: Nebraska Department of Health and Human Services, TB Control Program, 2013

### **Tuberculosis in Nebraska 2012-13 by Country of Origin:**

Foreign-born persons have a higher risk for exposure to or infection with tuberculosis, especially those that come from areas that have a high TB prevalence such as Asia, Africa, Latin America, Eastern Europe and Russia. Many persons from these regions now reside in Nebraska.

In both 2012 and 2013, 13 of the cases reported each year were among the foreign born. The percentage of foreign born cases was 59% for 2012 and 61% for 2013. The distribution by country of origin is as follows: 6 from Mexico, 5

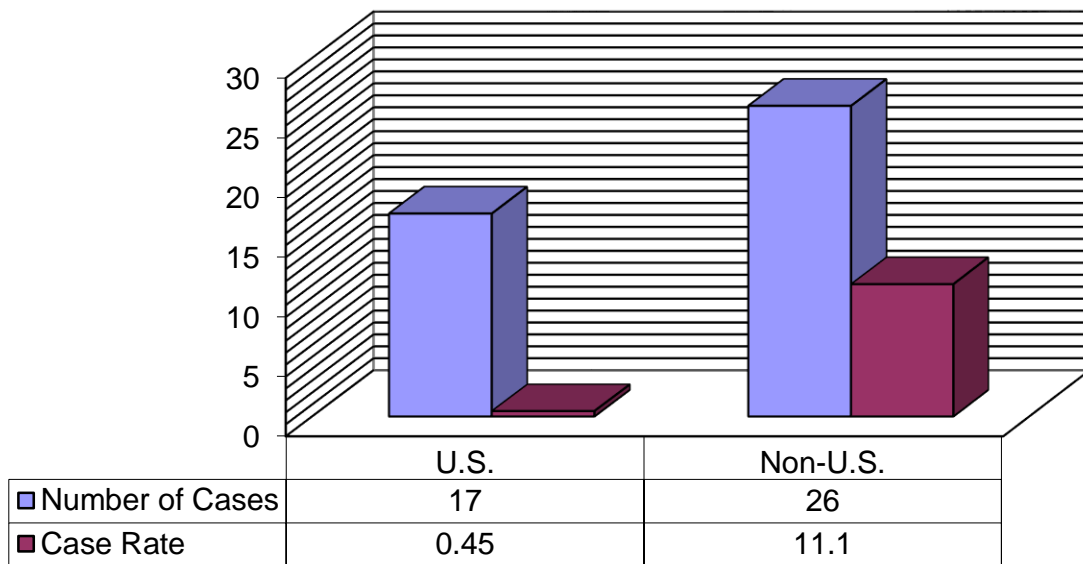
from Vietnam, 3 from El Salvador, 2 each from Sudan, Somalia, Guatemala, India, and 1 each from the Republic of Tanzania, Myanmar, Saudi Arabia and Nepal.



Source: Nebraska Department of Health and Human Services, TB Control Program, 2013

The number of foreign-born cases for both 2012 and 2013 compared to the population yields a case rate of approximately 11.5 per 100,000 foreign-born people compared to a case rate of 0.5 per 100,000 U.S.-born people. The case management activities around each of the foreign-born cases require a higher level of public health resources. The foreign-born population often needs resources for basic health care services, transportation and interpretation. The Health Department must have an understanding of cultural beliefs. When providing services to the different populations, there are great challenges to both the state and local health departments as they work to maintain high standards in completion of therapy rates and complete contact investigations.

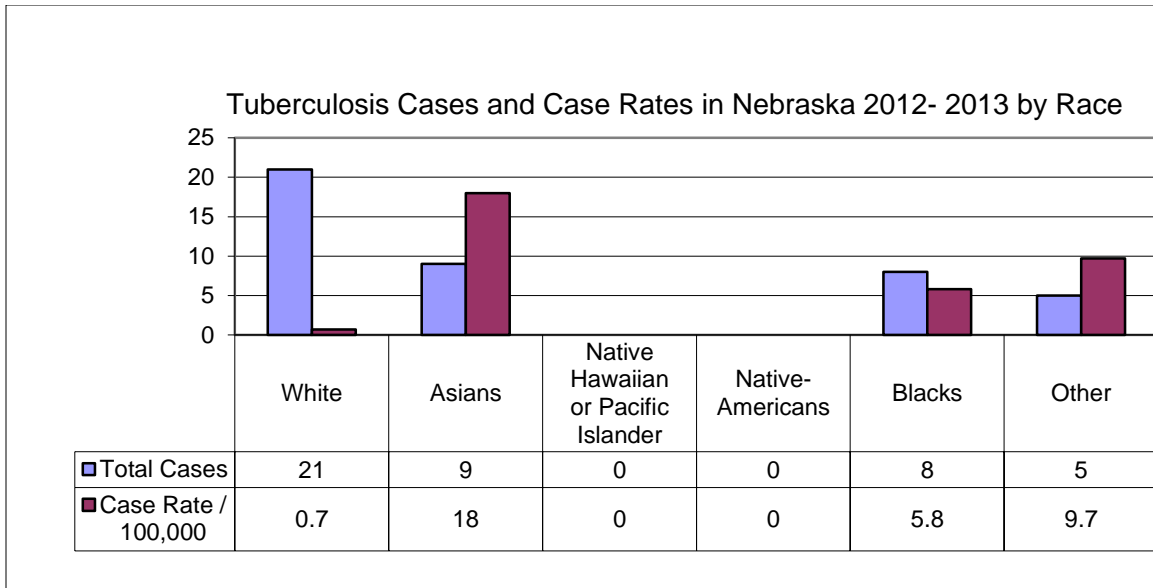
### Tuberculosis Cases and Case Rates in Nebraska 2012- 2013 by Place of Origin



Source: Nebraska Department of Health and Human Services, TB Control Program, 2013

### Tuberculosis in Nebraska 2012- 2013 by Race and Ethnicity:

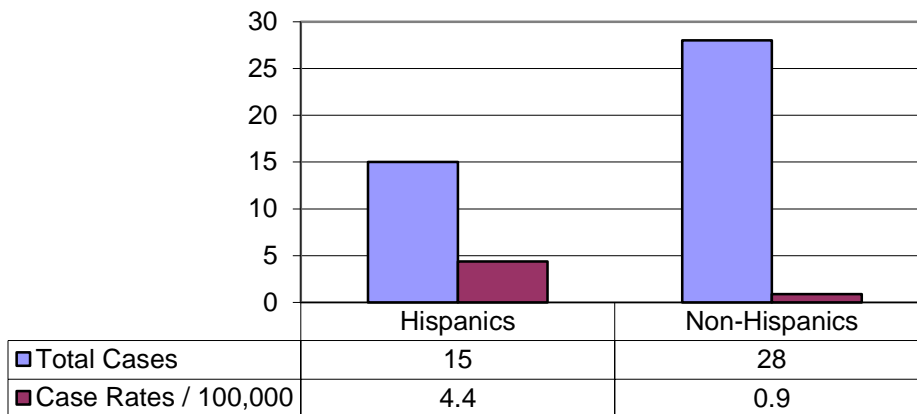
In Nebraska, the largest numbers of TB cases by race are reported by those identifying themselves as white. Other racial populations have significantly higher case rates. In 2012, the Asian population group had the highest case rate at 16.11/100,000. In 2013 the Asian case rate was 20.14/100,000.



Source: Nebraska Department of Health and Human Services, TB Control Program, 2013

Nebraska's population is 82% non-Hispanic based upon information from the year 2010 U.S. Census Bureau. 15 cases in 2013-2013 were of Hispanic or Latino ethnicity and 28 were non-Hispanic. The attack rates were 4.4 /100,000 for Hispanics and .9 /100,000 for non-Hispanics.

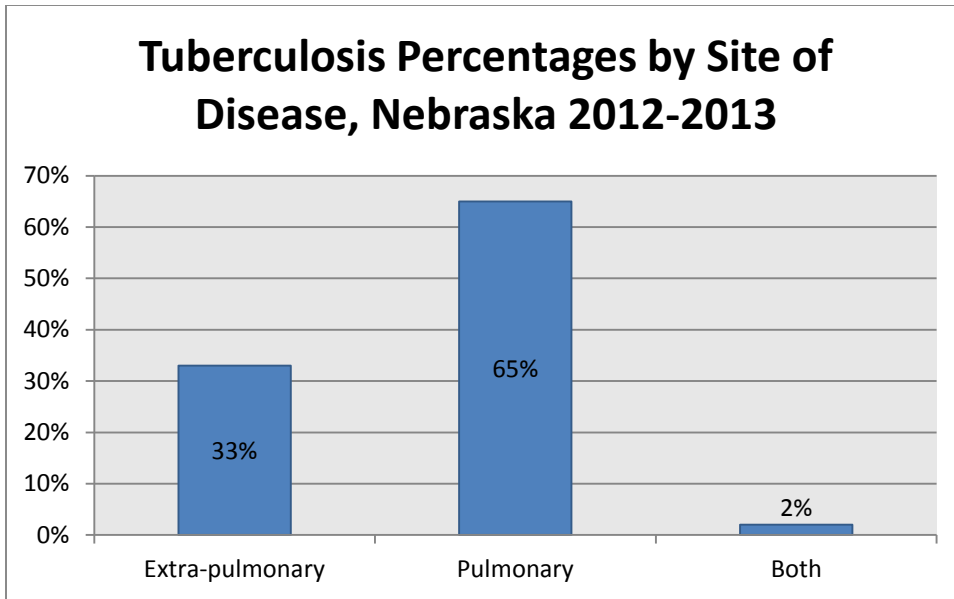
### Tuberculosis Cases and Case Rates in Nebraska by Ethnicity, 2012- 2013



Source: Nebraska Department of Health and Human Services, TB Control Program, 2013

### Tuberculosis in Nebraska 2012 -2013 by Site of Disease:

Of the combined 43 cases of tuberculosis reported in 2012- 2013, 28 (65%) had pulmonary disease, 14 (33%) had non-pulmonary disease and 1 (2%) had both. Extra-pulmonary TB can be more difficult to diagnose because of unusual presentations. Extra- pulmonary sites of disease included: lymph nodes, spine, knee and urine. Although these are unusual presentations of disease, clinicians in Nebraska continue to “think TB” and diagnose and treat these cases appropriately.



Source: Nebraska Department of Health and Human Services, TB Control Program, 2013

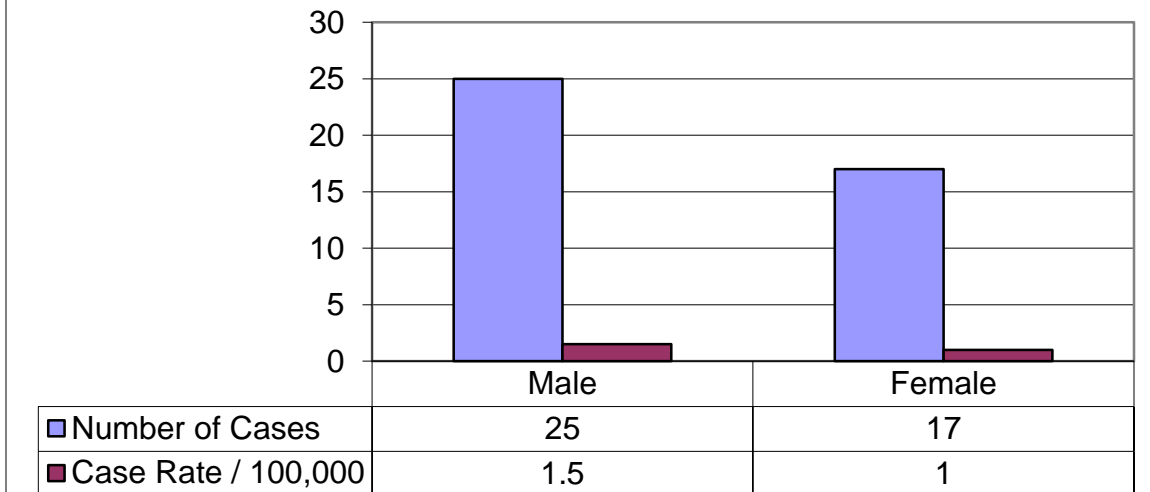
#### **Tuberculosis in Nebraska 2012-2013 by Verified Cases:**

Nebraska continues to use CDC's guidelines for both clinical and laboratory-confirmed cases. This surveillance method started in 2003. 12 of the 43 (28%) cases in 2012-2013 were clinically diagnosed; the remaining 31 (72%) cases were laboratory-confirmed with positive cultures for tuberculosis. It should be noted that even though the tuberculosis rate in the state is low, many more cases are investigated as tuberculosis suspects. In 2012-2013, 90 suspects were evaluated and followed until either proven to be TB or until the decision was made to treat them for latent TB infection (LTBI) only.

#### **Tuberculosis in Nebraska 2012-2013 by Gender:**

In the combined years of 2012-2013, the number of male cases was 25 and the number of female cases was 17. According to the U.S. Census Bureau year 2000 data, in Nebraska, males represent approximately 49% of the population and females represent 51% of the population.

### Tuberculosis Cases and Case Rates in Nebraska 2012-2013 by Gender



Source: Nebraska Department of Health and Human Services, TB Control Program, 2013

#### **Directly Observed Therapy (DOT) and Tuberculosis:**

A major factor in determining the outcome of treatment is patient adherence to the drug regimen. Careful attention is paid to measures designed to foster adherence. Directly observed therapy (DOT), which is having someone observe the patient taking their medication, is the standard of care for TB patients in the nation and in Nebraska. DOT assures compliance in taking the six to nine-month treatment regimen which is important to prevent drug resistance. It also provides the opportunity for monitoring for side effects and for doing contact investigations. When DOT is used, medications may be given intermittently, which often is more convenient for the patient and the local health department.

In 2012, 15 (68%) of the 22 treated cases were put on DOT. This is down from the percentage that that occurred in 2011. The reduction was due to the high number of extra-pulmonary disease diagnosed in 2012 (10 of 22 cases), which was nearly half of the cases that year. Not all extra-pulmonary cases are given DOT because the cases aren't considered an immediate public health risk and because there is a lack of resources in the local health departments. 4 of the 10 extra-pulmonary cases in 2012 were also given DOT. In 2013, 18 (86%) of the 21 treated cases were put on DOT. In this year there were 17 pulmonary diagnosed cases and 4 extra-pulmonary cases. Currently throughout the state of Nebraska, all pulmonary cases are given DOT, even if clinically diagnosed.

### **Latent TB Infection (LTBI) Summary**

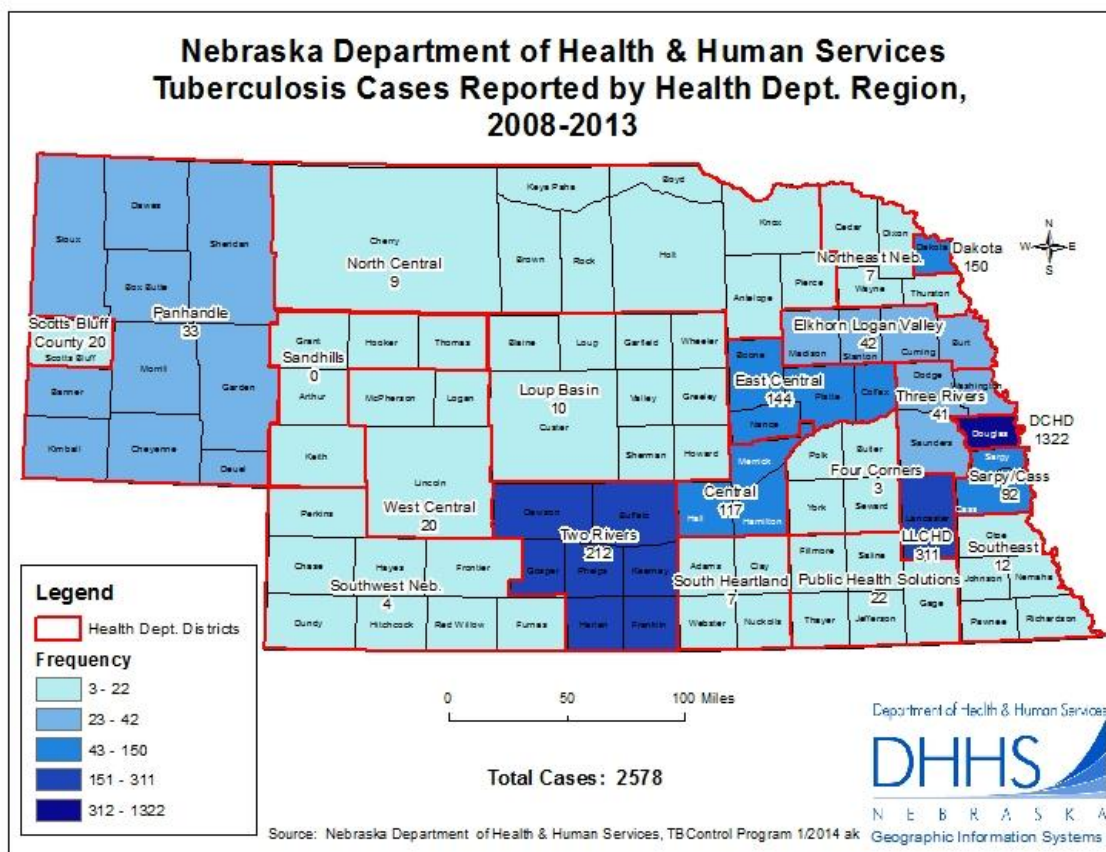
TB also affects persons in the state who are infected with the disease but not yet sick with it. The state's TB program provides Isoniazid (INH) which is used as a preventive medication for people infected with TB if they choose, free of charge. A total of 2,606 people were enrolled in the LTBI medication program from 2008-2013, an average of 36 enrollees per month. In 2013 there was a dramatic drop to 299 enrollees for the year. This can be attributed to the INH shortage that occurred from January 2013 to April 2013. During the shortage, Health Alert Network announcements with information from CDC were made, encouraging providers to use pharmacies for medications for LTBI instead of the state program or deferring treatment until the shortage was resolved. Recommendations for testing in health care facilities changed because of the shortage of the tuberculin used to perform tuberculin skin tests. Facilities were

advised to do only one test on new employees rather than using the 2-step testing technique or to use an interferon antigen response test such as Quantiferon-gold or T-spot, instead of the skin test or defer testing until the antigen could be obtained. By mid-year the pharmaceutical supplies came back to normal levels, but it has taken awhile for requests to come back into the state LTBI Program.

The majority, 86%, of LTBI enrollees in the years 2008-2013, were foreign born. The distribution by age group was 0-4 years, 1.4%, 5-19 years, 16.5%, 20-39 years, 55%, 40-59 years, 22%, and 60+ years, 4%. Treating people infected with TB, but not yet sick with it, is important to prevent TB disease in the future.

Current CDC guidelines recommend either a 6 or a 9-month course of therapy for treatment of LTBI with INH. A new course of treatment was approved in December 2011. The new option is a 12 dose, once weekly, regimen of INH and Rifapentine under direct observation. The shortened treatment cycle should allow more people to successfully complete treatment. The cost of Rifapentine given under DOT limits the TB Program in providing this option to Nebraskans. Plans are underway in Nebraska for a small study to be done using this new option, to better assess the amount of resources this option will require.

Nebraska accepts all of the listed options as completed therapy. At this time Nebraska does not require latent TB infection to be reported to the State TB Program unless medication is requested.



## Tuberculosis Program in Nebraska: Updates and Progress Report

The Tuberculosis Program continues to provide guidance and technical assistance to tuberculosis efforts throughout the state. The program maintains disease surveillance records and provides services to individuals identified with tuberculosis disease or infection. The services provided are: laboratory services for acid fast bacillus smears, cultures and susceptibilities; medications used for the treatment of TB or LTBI and DOT when ordered. Contact investigations are provided through contracts with local health departments and payment for x-rays and medical office visit fees for cases and contacts of infectious cases is available when there is no other source of payment. TB education and training is

provided for nurses, physicians and laypersons upon request. The TB Education Focal Point had exhibits at three professional conferences in the first six months of 2013. The conferences were:

- Physician Assistant conference, 175 participants
- Immunization conference, 228 participants and
- Nurse Practitioner conference, 110 participants.

The exhibits provide an efficient way to get information on TB out to the professional health care community. The TB Program collaborated with the State STD, HIV and Hepatitis Programs to put on an Infectious Disease Conference in Scottsbluff, North Platte and Norfolk. The TB Program sponsored a noon webinar on November 17, 2013 on TB Co-morbidities for clinicians around the state which has been archived. Another webinar with complex TB case reviews will be held on World TB Day, March 24<sup>th</sup>, 2014.

In July 2010, the Nebraska TB Program and the Kansas TB Program started to do regional, quarterly, cohort reviews of each state's respective cases. Cohort reviews are required by the CDC for states receiving cooperative agreement federal funds. This regional approach to the reviews was the first in the nation and has provided a template for other low-incidence states. The cohort reviews continue to provide a great opportunity for learning about varied TB disease manifestations and the case management services involved. For more information, please contact one of the TB Program staff.

The TB website is: <http://dhhs.ne.gov/TB>

## **ATTACHMENT A**

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